April 14, 2011 Warm-up

All energy resources are not the same. Can you distinguish between fossil fuels and renewable energy? Next to each fuel source indicate if it is a fossil fuel or a renewable source of energy. Write fossil fuel or renewable energy.

Coal \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Biofuel \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Wind \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Hydro \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Natural Gas \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Solar \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Oil \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Geothermal \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Gasoline \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Ocean waves \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Carbon dioxide (CO2) gas is not visible to the human eye. So estimating how much we produce by using fossil fuels can be difficult.

A gallon of gasoline weights 6.3 pounds. Gasoline consists of 87% Carbon atoms and 13% Hydrogen atoms by weight.

Calculate the weight of the Carbon atoms in one gallon of gasoline.

6.3pounds multiplied by 0.87 Carbon content = \_\_\_\_\_\_\_\_\_\_\_pounds of Carbon per gallon of gasoline.

When gasoline is burned, each atom of Carbon (atomic mass of one atom of Carbon = 12)bonds with two Oxygen atoms (atomic mass = 16).

1. What is the atomic mass of one molecule of Carbon Dioxide? Think – Ratios!
2. Calculate the relative weight of a CO2 molecule to a Carbon atom

Answer from A ÷ atomic mass of one Carbon atom = relative weight (pounds of CO2 produced per pound of Carbon)

1. Now multiply you answer for Step A, the weight of the carbon in a gallon of gasoline, by your answer for Step B, the ratio of CO2 to Carbon. The product is the weight of the CO2 produced by burning one gallon of gasoline.

How many pounds of carbon dioxide are produced when burning one gallon of gasoline?